FE332

SIDE SCAN

Diagram No. 1215-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey ... Side Scan Sonar

Field No. ... HE-10-10-89

Registery No. ... FE-332SS

LOCALITY

State ... New Jersey

General Locality ... Atlantic Ocean

Sublocality ... Offshore Elberon to Bradley Beach

1989

CHIEF OF PARTY
LCDR S.R. Iwamoto

LIBRARY & ARCHIVES

DATE ... May 15, 1990

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

FE332
SIDE SCAN

GP

12324 ✓
12326
12300
13006
13003

CARTOG SIGN-OFF ON FORM IN BACK

NOAA FORM 77-28 (11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-332SS

FIELD NO.

HE 10-10-89

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State: New Jersey

General locality: Atlantic Ocean

Locality: Offshore Bradley Beach to Elberon

Scale: 1:10,000 Date of survey: August 16 to August 18, 1989

Instructions dated: June 20, 1989 Project No.: OPR-C147-HE

Vessel: NOAA Ship HECK S-591

Chief of party: LCDR Stanley R. Iwamoto

Surveyed by: L.D. Weiner, H.W. Bonnah, M Sramek

Soundings taken by echo sounder, ~~hand lead, pole~~

Graphic record scaled by: DSF 6000 Echosounder and ship's personnel

Graphic record checked by: Ship's Personnel

Verification by ~~Protracted by~~: C.R. Davies Automated plot by: PMC Xynetics Plotter

Evaluation by ~~Verification by~~: C.R. Davies

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: This survey was conducted in order to resolve three contacts originally identified by WHITING in survey H-10287. Time in UTC. Revisions and marginal notes in black generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential. The text of this Descriptive Report is in a non-standard format. (See Section B.1 of text)

AWOIS/SURF MSM 5/22/90

KWW 5-23-90

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-3328S
FIELD NUMBER HE-10-10-89
NEW JERSEY
ATLANTIC OCEAN
OFFSHORE ELBERON TO BRADLEY BEACH
Scale 1:10000
NOAA SHIP HECK S-591
LCDR Stanley R. Iwamoto, CMDG

A. PROJECT DESCRIPTION

A1. Project Authorization

This survey was conducted in accordance with Hydrographic Project Instructions OPR-C147-HE, Offshore New Jersey Coast, dated June 20, 1989.

A2. Project Purpose

In 1988, the NOAA Ship WHITING conducted basic hydrographic surveys and completed 200 percent side scan sonar coverage of the project area. Per instructions, WHITING did not investigate or resolve assigned items or new contacts at that time. The purpose of this project was to provide rapid resolution of all items noted for additional investigation.

B. PROJECT OVERVIEW

B1. General

This report includes the results of all contact investigations performed in order to resolve items originally identified by WHITING in survey H-10287. Survey H-10287 was reviewed by personnel at the Pacific Hydrographic Section (N/CG245). Items to be addressed by HECK were specified in a memorandum from Rear Admiral Sigmund R. Petersen to Captain Christian Andreasen, dated March 22, 1989. This memorandum was forwarded to HECK as an attachment to the Project Instructions. All items listed in the memorandum were resolved by HECK during this survey.

Horizontal control recovery and installation of navigation units began on June 27, 1989. Hydrographic survey operations began on August 16, 1989, and continued until August 18, 1989.

The text of this Descriptive Report is in a non-standard format. This format was agreed upon during meetings held with personnel from HECK, RUDE, WHITING, and Atlantic Hydrographic Section during January of 1989.

B2. METHODOLOGY ✓

This survey was conducted according to procedures dictated in the Hydrographic Manual Fourth Edition; the Field Procedures Manual for Hydrographic Surveying; the Side Scan Sonar Manual; and the Hydrographic Guidelines.

Survey data acquisition and processing were accomplished utilizing the HDAPS system and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. The specific survey instrumentation utilized is discussed in Sections F through H of this text.

HECK chose to set up the HDAPS survey project parameters exactly as the WHITING had done. This decision allowed the HECK to survey in the same MTM coordinate system as WHITING.

The standard field survey procedure was to navigate to the coordinates provided by WHITING and to acquire fifty meter range scale imagery over the reported position of the contact. This imagery was compared against the photocopies of the 100 meter range scale images which had been provided as part of the project package. The 50 meter range scale images were obtained in order to provide a higher resolution view of the contact before making a decision as to the proper technique for resolving the item. The imagery was also used to refine the coordinates of the contact before conducting further work.

Contacts fell into one of three categories: diver investigation required for resolution; hydrographic development required for resolution; or insignificant contact requiring no further work. Generally, HECK chose to dive on any discrete point contact which appeared to be wreckage, localized rock outcrops, or small dredge spoils. Any broad shoal areas were resolved by hydrographic development.

Each contact was addressed individually and is discussed in section K of this text.

C. AREA SURVEYED ✓

This survey lies along the New Jersey coast between Elberon and Bradley Beach. The offshore limit of the survey is approximately six miles east of the New Jersey coastline.

D. SURVEY VESSELS ✓

All hydrographic and side scan sonar data were collected by the NOAA Ship HECK (EDPN 9140).

A 17 foot Boston Whaler skiff was used for installation and maintenance of MINI-RANGER shore stations and for general utility work. A 23 foot SISU launch was used as a dive support boat.

E. SURVEY SHEETS ✓

All survey sheets submitted in this report were generated using the Preplot Plotter Sheet utility of the Presurvey menu of the NAVISOFT 300 software on the HDAPS system. A Brunning 824 CS Plotter (S/N 15237) was used as the plotting device. All sheets are Modified Transverse Mercator projections and are plotted on the North American Datum of 1983 (NAD 83).

Two 1:10000 field survey sheets are submitted in this survey. See APPENDIX V, PROJECT and PLOTTER SHEET PARAMETERS, for the technical specifications on each sheet. Filed w/ hydrographic data

E1. HE-10-10-89W ✓

This sheet is a 1:10000 plot skewed 270°. The sheet covers the western portion of the survey. Contacts 7 and 15 were surveyed on this sheet. Raw data are submitted on tape 22810 and edited data are submitted on tape 22811.

Two copies of HE-10-10-89W are submitted:
- 1 field swathplot on mylar
- 1 smooth swathplot on paper

E2. HE-10-10-89E ✓

This sheet is a 1:10000 plot skewed 270°. The sheet covers the eastern portion of the survey. Contact 17 was the only contact assigned on this sheet. Raw data are submitted on tape 22820 and edited data are submitted on tape 22821.

Two copies of HE-10-10-89E are submitted:
- 1 field swathplot on mylar
- 1 smooth swathplot on mylar

F SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS ✓

F1. Raytheon DSF 6000N Echosounder ✓

All hydrographic soundings for this survey were acquired using a Raytheon DSF echosounder. System performance was checked daily with an Electronic Depth Simulator Instrument (EDSI) provided by AMC's EEB. The daily tests are included as part of each day's raw data records. Both low and high frequency depths were digitized, but only the high frequency depths were used for survey operations. The automatic gain function was utilized. Operations were conducted using both 40 and 80 range scale settings. The auto phase function was used. The digitizing gate was set at 10 percent of depth.

F2. EG&G Model 260 Side Scan Sonar ✓

The HECK is equipped with an EG&G Model 260 slant corrected Side Scan Sonar recorder (S/N 0011443) and a model 272 dual frequency towfish (S/N 0011591).

The towfish is led through a fairlead block over the stern and towed astern at speeds of 2 to 5 knots. Fish height over bottom is controlled by a combination of cable out and ship speed. The paper speed on the recorder was set manually. The operator made frequent checks of vessel speed and adjusted the paper speed as necessary. This procedure eliminated paper "speed jumps" caused by spikes in the navigation LOPs and insured that targets were depicted in their correct size and shape.

Side scan operations were conducted in accordance with the Side Scan Sonar Manual dated September 1988. Periodic confidence checks were performed by either towing the fish by a previously located contact, or by noting recognizable bottom characteristics at the edges of the sonar range scale in use. The side scan sonar system worked very well for the duration of the survey.

F3. Leadline and Pneumofathometer ✓

No diver determined least depths are submitted in this survey.

G CORRECTIONS TO ECHO SOUNDINGS ✓

G1. Velocity Correctors ✓

The following table shows the dates and locations that velocity correction data were obtained by making direct readings of sound velocity using the ODOM Digibar sound velocimeter:

DATE	LOCATION
7/13/89 (DOY 194)	40° 27' 12"N ; 73° 55' 00"W
7/27/89 (DOY 208)	40° 22' 30"N ; 73° 54' 48"W
8/23/89 (DOY 235)	40° 08' 30"N ; 73° 54' 00"W

The velocity cast data were reduced and velocity corrections calculated using program VELOCITY. The computed velocity correctors were then applied online to echosounder depths by entering the correction data into the HDAPS sound velocity table. Reference APPENDIX I.A, VELOCITY CORRECTION DATA, for listings of the cast data and output from the VELOCITY software. HDAPS velocity table listings are also shown in APPENDIX I.A. Filed w/ hydrographic data

All data were collected using the results of the 27 July velocity cast. This HDAPS velocity table listing is shown in APPENDIX I.B.*

Velocity correctors were verified by conducting a dual leadline comparison of echosounder and leadline depths on DOY 194. Digital depths agreed with leadline depths within one half foot. Results of the comparison are included in APPENDIX I.C., LEADLINE COMPARISONS.*

G2. Tide Corrections ✓

The tidal datum for this project is mean lower low water. The operating tide station at Sandy Hook, NJ will serve as control for datum determination. This station was also used for predicted tides. No tide stations were established by the HECK in support of this survey. Verification Third-order levels were conducted at the tide station on June 28, 1989 (DOY 179) and at the end of the project on August 31, 1989 (DOY 243).

All hydrographic depths have been corrected for predicted tides. The tidal values were taken from Tide Tables 1989 High and Low Water Predictions, East Coast of North and South America. Correctors for time and height were taken from the project instructions.

Tidal correctors were applied online by entering the appropriate values into an HDAPS predicted tide table. This table is included in APPENDIX I.D., HDAPS PREDICTED TIDES TABLES.*
Tidal correctors were incorrect on Day 228-231. This only effected the soundings on the final field sheet.
A Request for Approved Tides was mailed to Chief, Sea and Water Levels Branch, on November 17, 1989. A copy of this letter is enclosed in Appendix VI.A.*

G3. Settlement and Squat Correctors ✓

Settlement and squat correctors for the HECK were determined on March 10, 1989 (DOY 69), at Craney Island fuel pier in Norfolk, Virginia. An observer was put ashore with a level instrument, and changes in relative height were measured as the ship passed by the observer while running at various speeds. (Reference APPENDIX I.E, SETTLEMENT AND SQUAT DATA.)*

Settlement and squat values were applied online to hydrographic soundings by entering the observed values into the HDAPS offset table. A copy of this table is included in APPENDIX I.F, HDAPS OFFSET TABLE.*

G4. Heave, Roll, Pitch Sensor and Correctors ✓

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located midships near the transducer. The sensor gathers online data which is applied to the soundings in near real time.

* filed w/ hydrographic data

All data acquired in the echosounder mode have been corrected by applying HIPPY correctors.

G5. Vessel Draft Corrector

During a February 1988 drydock period, an exact measurement of 19.0 feet was taken from the DSF transducers to a fixed point on each bridge wing of the ship. After refloating the ship, the height above the waterline was determined for this point. The ship's static draft was calculated to be exactly 6.9 feet (2.10 meters).

This draft was applied online to hydrographic soundings by entering the value of 2.1 meters as the high frequency transducer height in the HDAPS offset table. See APPENDIX I.F, HDAPS OFFSET TABLE. Filed w/ hydrographic data.

H. HORIZONTAL CONTROL

H1. Survey Navigation

Vessel survey navigation was accomplished by the range-range method, utilizing the Motorola MINI-RANGER Falcon 484 system.

The MINI-RANGER system is interfaced to the HDAPS system in such a way that only the ranges and signal strengths are recorded; the position computation capability of the Falcon system is not utilized. Vessel position is computed by a least squares predictor/corrector algorithm within the NAVITRONIC NAVISOFT 300 software.

The hydrographer must specify each of three interactive parameters which "tune" the positioning algorithm. The following parameters were entered into the Offset Table :

1) acceleration limit ..... 0.2 meters second $^{-2}$

2) angle limit ..... 0.3 degrees second $^{-1}$

3) crabbing limit ..... 0.4 degrees

The algorithm simultaneously uses up to four electronic lines of position (LOPs). Additionally, the ship's gyro heading and speed are used to predict a position. Whenever more than two acceptable LOPs are measured, the position computation is mathematically overdetermined. In order to utilize all available information, a least squares adjusted position is computed.

Three measures of the quality of this adjusted position are: the magnitude of the residuals on each range; the size and

orientation of the error ellipse; and the radius of the 95% confidence error circle. HDAPS provides the hydrographer with a continuous graphic display of these data as well as a rough graphic of survey geometry. The required survey navigation positional accuracies are specified in terms of the maximum residual and the error circle radius. These requirements are stated in the Project Instructions.

Field Procedures Manual Memorandum #89-01, dated 08 August 1989, negated the requirement for sextant fixes when HDAPS is routinely operated in the multiple LOP mode and when positional accuracies are within specified tolerances.

The HECK conducted survey operations on DOY 228 using three LOPs. The maximum residual and the error circle radius were within the required tolerances for a 1:10000 scale survey. These same LOPs were used on DOY 230, however, operations were conducted using only two of the three LOPs. A critical calibration was not conducted because these two LOPs had been shown to be correct on DOY 228.

A pre-project baseline calibration (BLC) of the MINI-RANGER system was conducted at Fentress Airforce Base on January 31, 1989. A mid-season BLC was conducted at Port Jefferson, New York, on May 20, 1989. During these calibrations, the range correctors were determined for each combination of transponder and shipboard R/T and RPU. A minimum acceptable signal strength (MASS) was also determined for each transponder. All data in this survey utilized correctors determined during the Baseline Calibration of May 20, 1989. Reference APPENDIX II.B,* MINI-RANGER BASELINE CALIBRATION DATA, for the results of this calibration. BLC raw data, computations, and graphs are included in Electronic Control Report OPR-B660-HE-89. Pertinent sections of this report have been submitted to the Pacific Hydrographic Section under separate cover.

The range corrector and MASS for each MINI-RANGER code was entered into the HDAPS system using the Pre-Survey C-O Table Utility. This table provides the mechanism by which HDAPS automatically applies the proper range corrector and removes from the position computation those LOPs with signal strengths below MASS. Reference APPENDIX II.C, HDAPS C-O TABLES,* for the C-O table used during this survey.

MINI-RANGER shore station installations were placed directly over Third Order Class I or better geodetic stations. Control station positions were entered into the HDAPS Control Station Tables using the Pre-Survey menu. (See APPENDIX II.A, LIST OF HORIZONTAL CONTROL STATIONS). The appropriate MINI-RANGER codes were attached to the station number on this table. Each time the survey navigation configuration was altered, the control station table was modified so that it reflected the correct MINI-RANGER

Attached to this report.

* filed w/ hydrographic data.

code placement. APPENDIX III, HDAPS DAILY DATA AQUISITION AND PROCESSING ABSTRACTS correlates control stations, MINI-RANGER codes, position numbers and dates of use. This information is also tabulated on the Abstract of Positions shown in APPENDIX II.D. Filed with the hydrographic data

H2. GEODETIC CONTROL ✓

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). All stations were either established or recovered by WHITING. All coordinates were taken from WHITING's control station table.

Ambrose Light ECC, station number 001, was the only offshore station used. All other stations used in this survey were located aong the New Jersey coastline.

I. AUTOMATED DATA PROCESSING ✓

Hydrographic and side scan sonar data acquisition and processing were accomplished using the HDAPS hardware and the most recent version of the Navitronic NAVISOFT 300 software provided to the ship. This software is still under development and some problems do exist:

1) The positioning algorithm occasionally generates a "flyer" which causes the plotter sheet to scroll in an unpredictable manner. HECK personnel tried unsuccessfully to edit these "flyers" in the nightly processing. Therefore, the plotter continued to scroll even in the off-line data processing mode.

2) Data transfer problems sometimes created the necessity to reject data because the data could not be transferred to the hard disk from the raw data tape. This problem occurred whenever there was an abnormal interrupt of a survey line; the final data set number (DSN) was not written to the raw data tape. If this interrupt occurred, the entire line was irretrievable. One known source of this problem was the delay in writing HIPPY data to the tape. If the HDAPS system is taken off-line before waiting out the HIPPY delay, then the survey line cannot be written to the hard disk for editing. Not all such problems were caused by HIPPY delay. Occasionally data could not be transferred from the raw tape and the problem could not be identified.

   On DOY 228, the first data line (Fixes 1131 - 1134) on tape 22810 could not be transferred from the tape to the disk for editing. This problem was caused by the incorrect numbering of DSNs on the tape. These data are acceptable and the line is not shown in the daily records as rejected, however, it is not on the edited data tape. Pos #1135 was manually plotted on the smooth sheet and inserted into the survey records because it was not included on the submitted tape of raw data. Pos# 1131-1134 were not included on the submitted tape of raw data. It was reviewed and found insignificant and was not included on this survey.

DIGIBAR velocity cast data was processed on the ship's IBM-PC XT using program VELOCITY.

Geodetic computations were performed on the ship's IBM-PC XT using the MTEN ENHANCEMENTS routines which were obtained from the National Geodetic Survey

J. COMPARISON WITH CHARTS AND PRIOR SURVEYS ✓

Hydrographic soundings from this survey were compared against the following chart:

NOS CHART 12326
FIRE ISLAND LIGHT TO SEA GIRT
1:80000
38TH ED 22FEB86

NOS CHART 12324SC
SANDY HOOK TO LITTLE EGG HARBOR
1:40000
~~38~~ 34TH ED 15NOV86

See Final Report Section 6

This survey was also compared against prior survey:

H-10287
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE ELBERON TO BRADLEY BEACH
1:10000
1988

The chart and prior survey comparisons were conducted by plotting the position of the contacts directly on the chart or survey.

Specific details of the comparisons are discussed in section K of this report, under the item investigation report for each contact.

No dangers to navigation were reported to Coast Guard as a result of this survey. concur

K. CONTACT INVESTIGATION REPORTS ✓

Three contacts were investigated during this survey. Each item is discussed individually in the remaining text. Side scan sonar imagery covering each contact is abstracted on the target abstract for the individual contacts. (see appendix IV.)* The contact investigation reports are organized in the following manner:

* attached to this report.

1) Text describing the search area, search technique, and result of investigation

2) MTM to LAT-LONG conversion and tide corrector determination

3) Diver's sketch on contact of contact (if appropriate)

4) Photographic copy of fathometer image at time of detached position

5) Photographic copy of the SSS image obtained by the HECK

6) Photographic copy of the SSS image obtained by the WHITING

7) Dive operations summary (if appropriate)

CONTACT	STATUS	RECOMMENDATIONS
7	RESOLVED	INSIGNIFICANT Do not Concur
15	RESOLVED	WRECK, ~~NON-~~DANGEROUS, DEPTH 48 FEET Concur
17	DISPROVED	none Concur

K 1. INVESTIGATION REPORT FOR CONTACT 7

AREA OF INVESTIGATION : (sheet 1 of 3)

AWOIS #7781

State: New Jersey
County: Monmouth
Locality: Two miles east of Deal, NJ
Latitude: 40° 14' 58.197" N
Longitude: 73° 57' 14.564" W
Reported Depth: 57 feet (from H-10287)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 228
Diver Investigations: none
Echo Sounder Investigation: none
Contacts: One

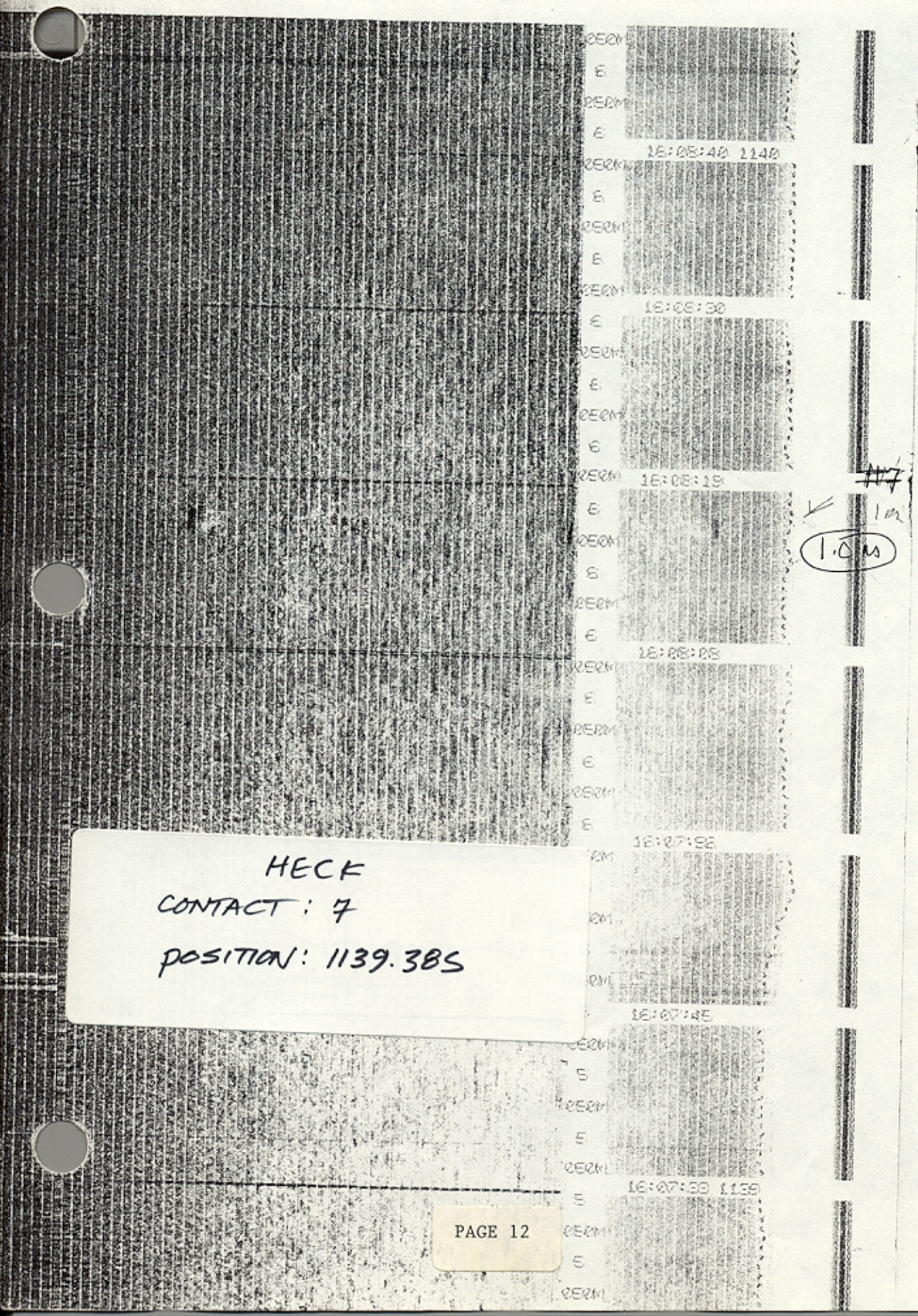
A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. HECK first located the contact at position 1136.0S. A second image was acquired at position 1139.38S.

CONTACT DESCRIPTION : The contact lies in 63 feet of water in the center of a depression which is three to five feet deeper than the surrounding bottom. Two clear SSS images obtained by HECK show that the contact is a single object rising no more than three feet above a flat bottom. Recomputation of the WHITING image by HECK personnel yields a target height of 1 meter, which is consistent with the HECK's results. HECK considers this contact to be insignificant for navigational purposes and no further investigation was conducted.

RECOMMENDATIONS : The contact lies approximately two miles offshore. It does not represent a danger to navigation. The contact is insignificant and should not be charted.

Chart obstruction with an approximate depth of 58 feet at mllw at the above position.

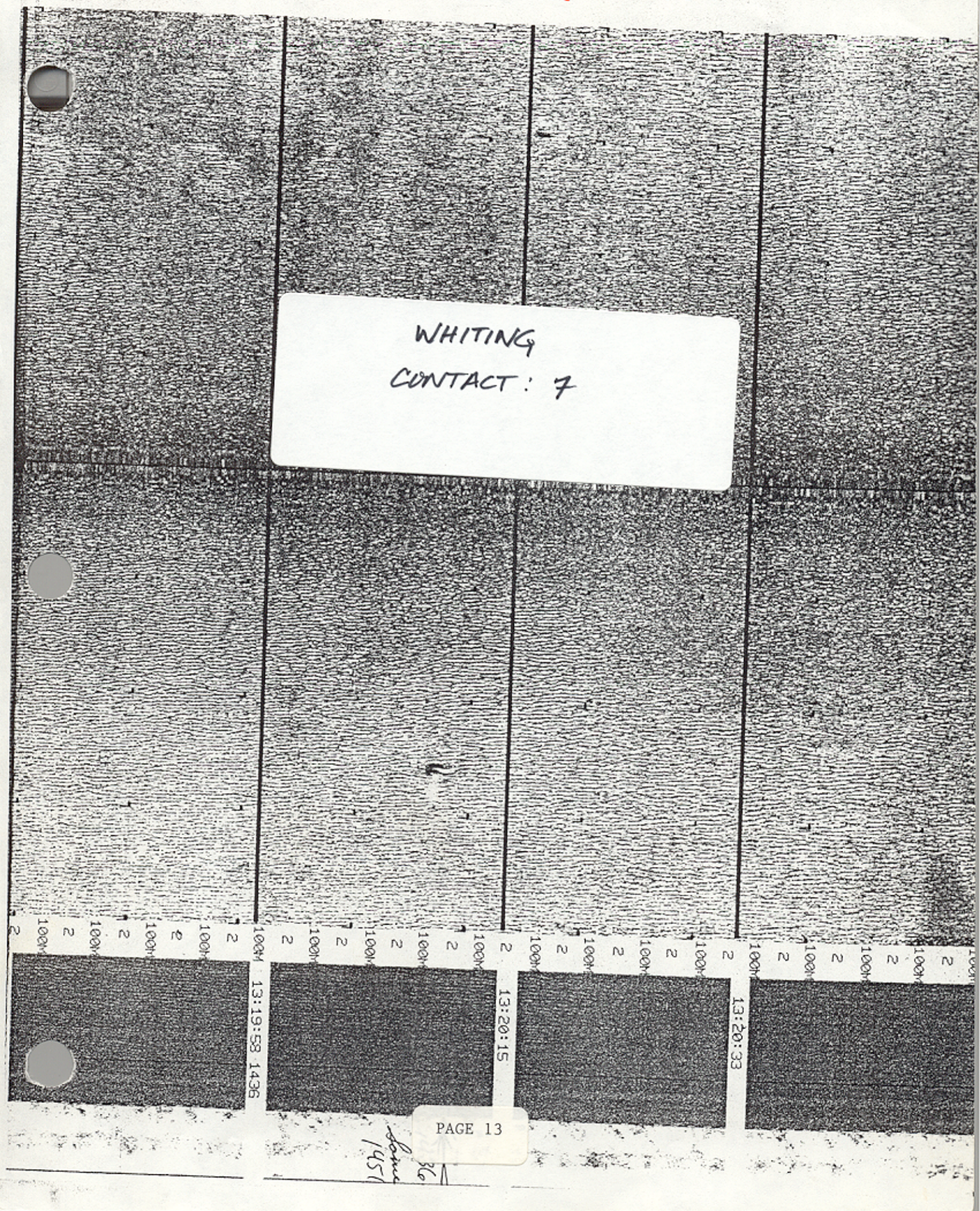
Do Not Concur
See Final Report section 6.



HECK
CONTACT : 7
POSITION : 1139.385

PAGE 12

Contact → Obstruction 4.3' in 62'



K 2. INVESTIGATION REPORT FOR CONTACT 15

AREA OF INVESTIGATION : Sheet 2 of 3

State: New Jersey
County: Monmouth
Locality: One mile east of Bradley Beach, NJ
Latitude: 40° 12' 12.247" N
Longitude: 73° 59' 16.519" W
Reported Depth: 41 feet (from H-10287)

AWOIS #1517

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 228
Diver Investigations: DOY 228
Echo Sounder Investigation: none
Contacts: One

A fifty meter range scale SSS search was performed over the coordinates provided by WHITING. The contact was located by the HECK at position 1132.0S. A marker buoy was deployed at position 1134. Divers investigated the contact and moved the buoy to the highest point. Fix 1135 was taken when the HECK was manuevered alongside the marker buoy.

DIVER INVESTIGATION SUMMARY : Divers descended the marker buoy to the bottom in about 55 feet of water. The contact was located to the north of the buoy while beginning a circle search. The marker buoy was moved to the wreck.

CONTACT DESCRIPTION : The divers found the very deteriorated remains of an old wooden wreck. Visibility was very good. After exploring the wreckage, the divers determined that it rose no more than one to two feet above the bottom. The wreck was found to be insignificant and no least depth measurement was made by the divers.

LEAST DEPTH DETERMINATION : The depth was measured with the ship's echosounder when the HECK was manuevered alongside the dive buoy. The echosounder graphic record shows that the wreck rises only about 1.5 feet above the bottom. This height was verified by the divers.

Date of measurement: 16 August 1989 (DOY 228)
Time (UTC): 1302

Echosounder depth:	41.5
Draft:	6.9
Velocity:	1.4
PREDICTED tidal corrector:	-1.5
Least depth:	48.3 w/ predicted tides
	48.1 w/ approved tides

POSITION DETERMINATION :

Fix number:	1135
Number of LOP's:	3
Maximum residual:	0.1
Error circle radius:	10.0
Easting:	21797.5
Northing:	15182.6
Latitude:	40° 12' 12.231" N
Longitude:	73° 59' 15.415" W

RECOMMENDATIONS : The Project Instructions speculate that this wreck is AWOIS item 1517. Because of its deteriorated condition, the wreck could not be positively identified as the coal barge listed in the AWOIS text. However, HECK feels that this wreck is the AWOIS item and considers the AWOIS item resolved. Concur

The wreck is presently charted as a wreck cleared by wire drag to 39 feet. HECK recommends that the symbol be changed to a wreck, not dangerous to surface navigation, with a known depth of 48 feet. The wreck should be charted at the position determined in this survey. Do not concur

chart dangerous submerged wreck with a least depth of 48 ft. at MLLW. The 39 ft. cleared depth should be removed from the chart. Supersedes the 41 ft depth on survey H-6463 WD and H-10287.

NAVISOFT 300 4.10 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 15 Nov 06:24:57

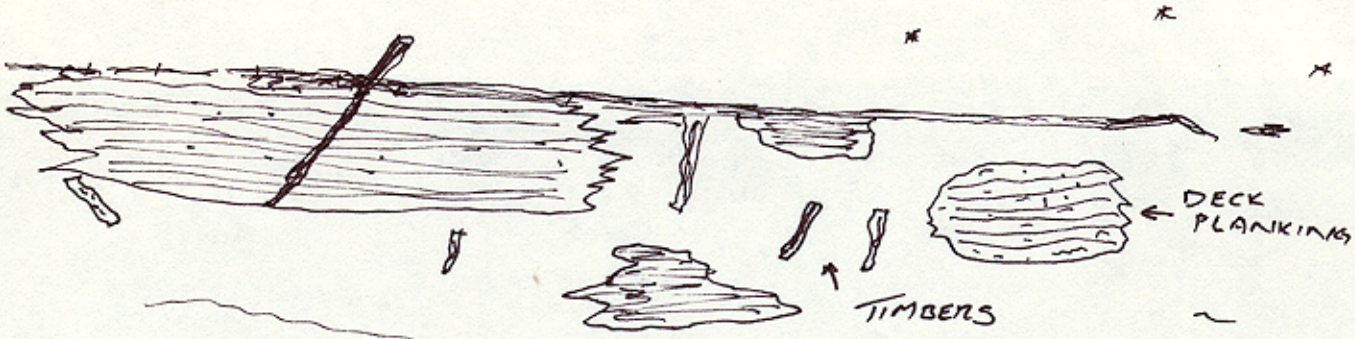
Easting.....: 21797.5
Northing.....: 15182.6

Latitude.....: 040:12:12.231
Longtitude.....: 073:59:15.415

User 1 Caps Running

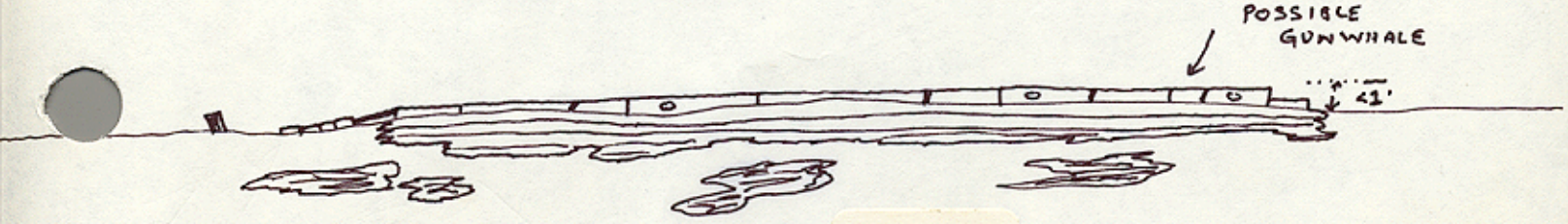
HELP Dump Alpha Dump Graphics

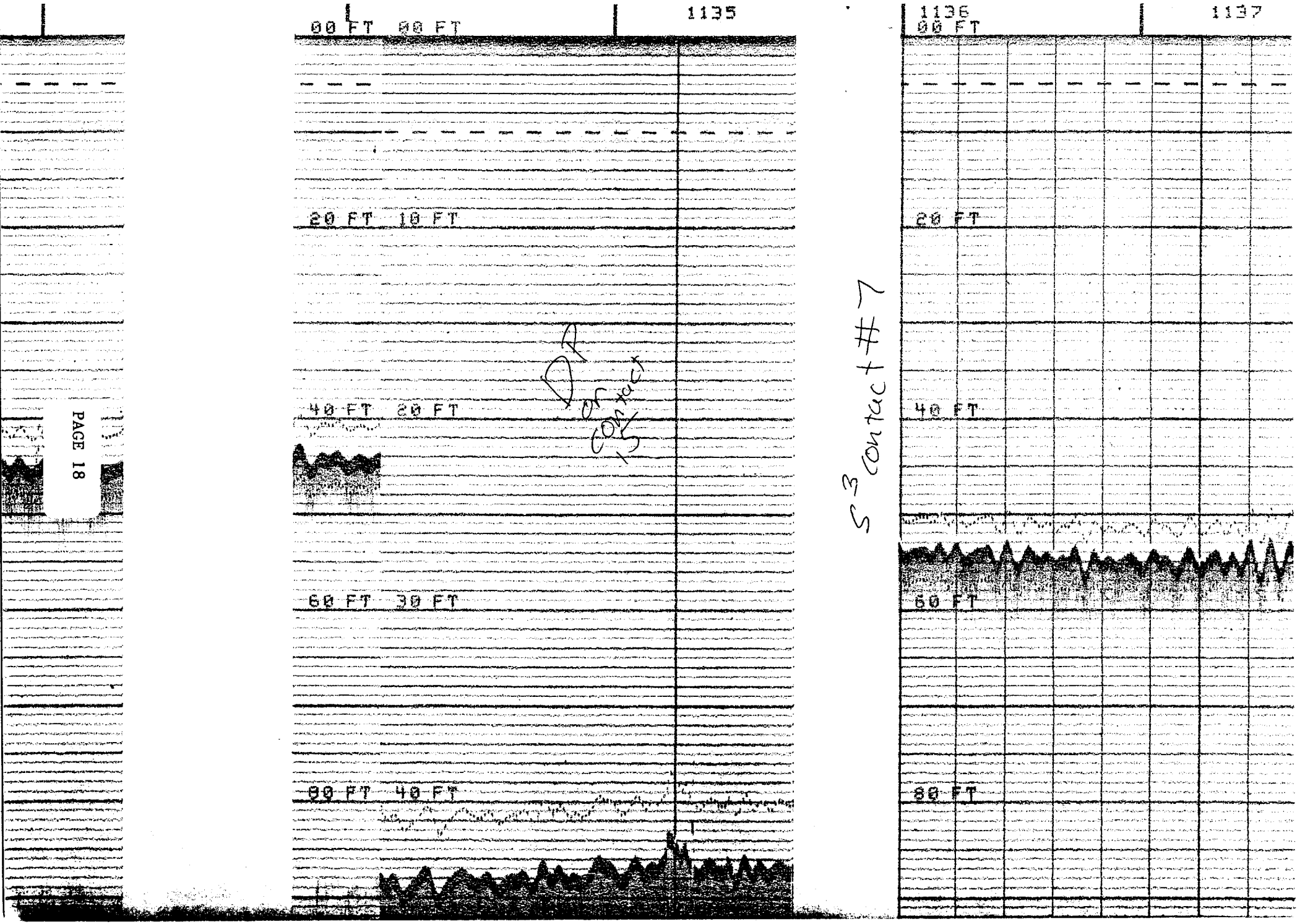
CONTACT #15 DIVE

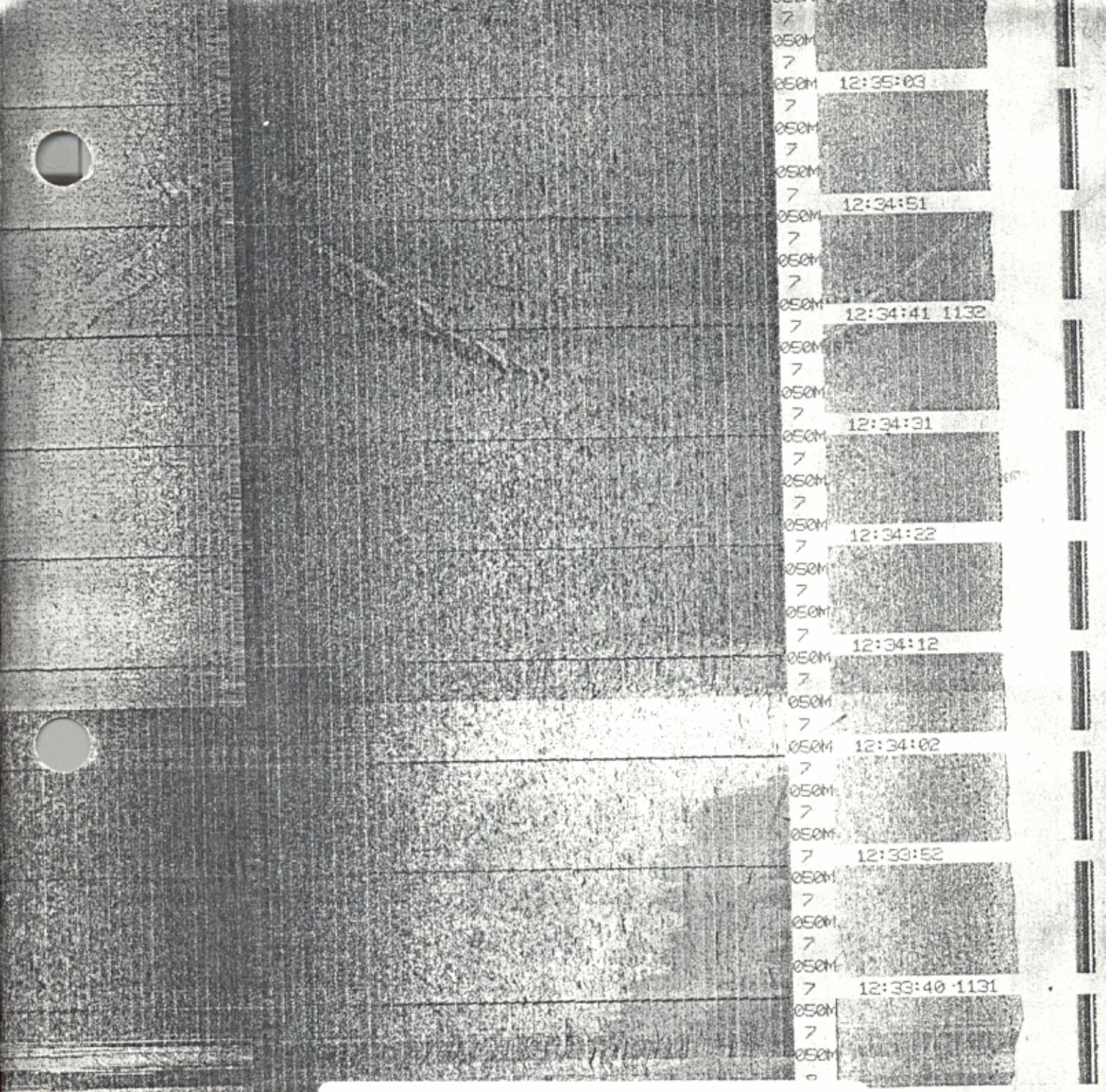


HARD SAND BOTTOM.

CONTACT DEEMED AS INSIGNIFICANT




1135
00 FT 00 FT
20 FT 10 FT
40 FT 20 FT
60 FT 30 FT
80 FT 40 FT
1136
00 FT
20 FT
40 FT
60 FT
80 FT
1137
S3 contact #7

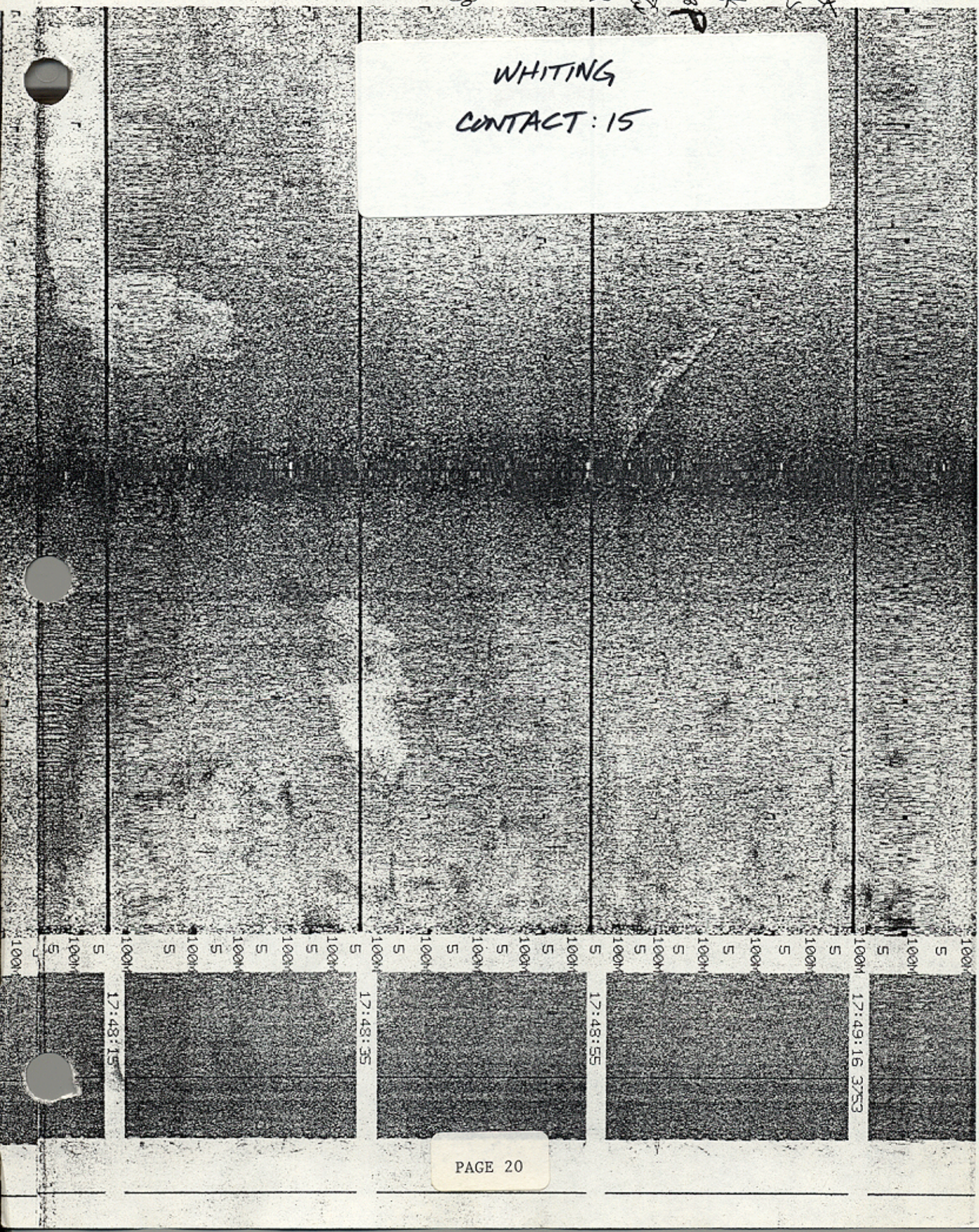


HECK

CONTACT: 15

POSITION: 1132.05

Contact 15 Wreck
Awois 1517



CB

DIVING OPERATIONS
C-147

DATE: 16 AUG 1989

UNIT: NOAA SHIP HECK S591
AWOIS ITEM # C-147
TARGET # #15

LOCATION: MIDDLE ATLANTIC COAST

DIVE MASTER: LT. G. TUELL
TENDERS: AB. LEWIS
C.B. MICKLE

DIVERS: BONNAH
SRAMEK

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: 55' FT.
MAX TIME : 14' MIN.
AVERAGE LEAST DEPTH: - FT.
DEPTH: (1) N/A (2) _____ (3) _____ LEAST DEPTH TIME : - : -

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR _____ KTS _____
SEAS : DIR _____ FT _____
CURRENT : KTS _____

VISIBILITY: FT. 20'
AIR TEMP: (C) _____
WATER TEMP: (C) _____

ALL TIMES LOCAL:

TANK PRESSURE: * DIVE TIME: *

DIVERS NAME	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
# Bonnah				*IN 2700/2900		*DN 1014	:14	53'	D
mark				600/950 OUT*		10.40 UP*	:14	53'	D
mark		D	17	*IN 2900/2800		*DN 1108	:13	52	
2 Bonnah				1400/1400 OUT*		1122 UP*	:13	52	
3				*IN _____		*DN _____			
				_____ OUT*		_____ UP*			

POST DIVE COMMENTS: DIVERS DECENDED BOUY LINE TO A DEPTH OF 55' (BOTTOM) ATTACHED BOUY TAG LINE AND SWAM NORTH. SWAM ONTO WRECKAGE, SUNKEN SHIP. SHIP WAS WOODEN AND ROSE 1.5' MAX OFF OF THE BOTTOM. IT WAS DETERMINED NOT TO BE A HAZARD TO NAVIGATION. SECOND DIVE WAS COMPLETED TO FREE DIVE BOY ANCHORS.

DIVE MASTER SIGNATURE

K 3. INVESTIGATION REPORT FOR CONTACT 17

sheet 3 of 3

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: Five miles east of Bradley Beach, NJ
Latitude: 40° 12' 28.697 " N
Longitude: 73° 53' 24.091" W
Reported Depth: 71 feet (from H-10287)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 228 and DOY 230
Diver Investigations: none
Echo Sounder Investigation: none
Contacts: none

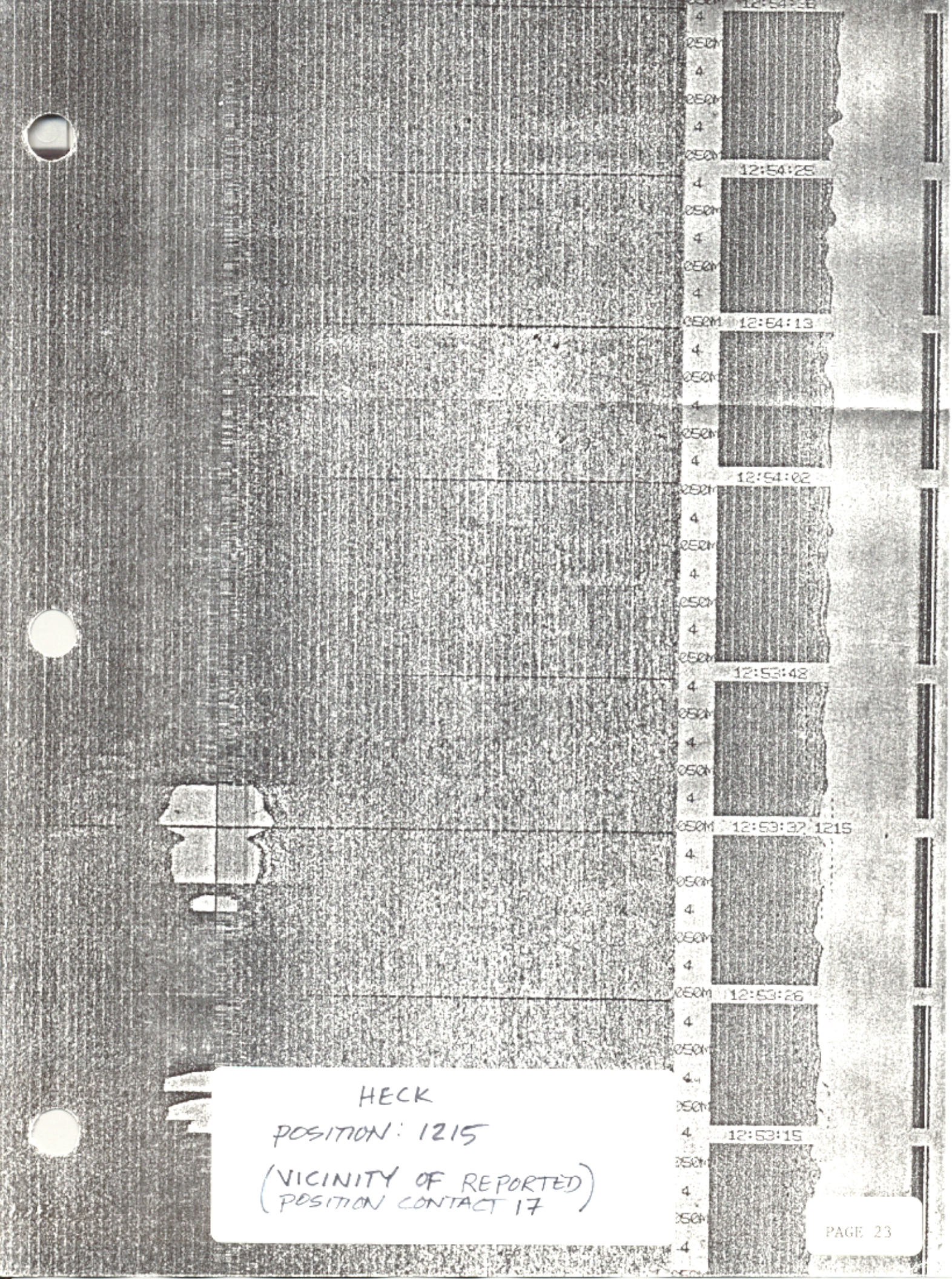
A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. Three passes were made over the reported position. No contacts were located by HECK.

The port channel of the side scan system was not operating between fixes 1146 and 1149. However, the contact should have been visible on the starboard channel during this swath.

CONTACT DESCRIPTION : Imagery acquired by HECK is not similar to that taken by WHITING. The bottom characterisics visible on the WHITING's images are not seen on the images taken during this survey. No contacts were found.

RECOMMENDATIONS : The contact lies approximately five miles offshore in more than 70 feet of water. Nothing of significance was found by the HECK in the area of the reported contact. This contact is disproved.

Concur



HECK

POSITION: 1215

(VICINITY OF REPORTED POSITION CONTACT 17)

Contact 17 Possible Wreck

WHITING
CONTACT: 17

23:36:49 4462

23:37:13

23:37:37

23:38:00

23:38:24 4463

23:38:50

PAGE 24

Submitted by: Grady H. Tuell, LT, NOAA
Executive Officer
NOAA Ship HECK

L. LETTER OF APPROVAL

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and data quality. This report, field sheets, and data records have been closely reviewed and are complete and adequate for charting.

Stanley R. Iwamoto, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

LIST OF HORIZONTAL CONTROL STATIONS

NUMBER	NAME	LATITUDE	LONGITUDE
001	AMBROSE LIGHT ECC, 1988	40° 27' 35.263"	073° 49' 49.999"
007	SHORES, 1988	40° 19' 42.745"	073° 58' 27.912"
009	OCCOVE, 1988	40° 16' 48.873"	073° 58' 59.989"
012	ASBURY T, 1988	40° 13' 43.310"	073° 59' 53.482"

All control stations are field positions
All control stations fall outside the survey area.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

FILE COPY

MAR 22 1989

MOP211C/JSG

MEMORANDUM FOR: Captain Christian Andreasen, NOAA
Chief, Nautical Charting Division

FROM: Rear Admiral Sigmund R. Petersen, NOAA
Director, Pacific Marine Center

SUBJECT: Review of Survey H-10287 Side Scan Sonar Records

The side scan sonar records for hydrographic survey H-10287, Offshore Elberon to Bradley Beach, conducted by NOAA Ship WHITING from October 11 to November 23, 1988, have been reviewed as required by section 6.14.1 of the Project Instructions for OPR-C147-WH, Offshore New Jersey Coast, dated August 22, 1988. The review consisted of checking the sonargrams for additional contacts; checking the contact height and position computations; and correlating the contacts with AWOIS items, charted features and soundings from the field sheet.

The hydrographer initially identified 21 contacts, 10 of which were recommended for additional investigation. No additional contacts were identified during this review.

Six of the ten contacts recommended for further investigation are points on the ends of two sewer lines. The positioning of these features is confirmed by traces on the echograms. The echogram depths and positioning, supplemented by the side scan information, are adequate for the charting of these features. Therefore, additional investigation is not necessary.

The remaining features are either wrecks or obstructions. The wrecks are all candidates for further investigation. The obstructions were evaluated for significance using the criteria contained in section 7.1.1 of the project instructions. The application of this criteria, 10 percent of the depth or one meter at depths shallower than 66 feet, resulted in Contact 7 as the only obstruction requiring additional investigation.

Therefore, the remaining significant side scan sonar contacts recommended for additional investigation are listed below (positions are on NAD83).

CONTACT NUMBER	FEATURE	OBJECT HEIGHT	APPROX DEPTH	LATITUDE	LONGITUDE
7	Obstr	6.3'	57'	40°14'58.2"	73°57'14.6"
15	Wreck*	2.0'	49' 47	40°12'12.2"	73°59'16.5"
17	Wreck**	3.9'	72' 71	40°12'28.7"	73°53'24.1"

* Contact 15 is located 75 meters northwest of AWOIS Item 1517, a 39-foot cleared depth charted at latitude 40°12'12"N, longitude 73°59'18"W (NAD27).

** Contact 17 is noted as a possible wreck.

These features should be investigated by dives to determine minimum depths and to obtain descriptive information. Contact 17, the possible wreck, may be resolved prior to diving if 200 percent east-west side scan sonar does not confirm a wreck or other significant feature.

Information has been received recently regarding a potential error in soundings obtained with the DSF-6000N echosounder. The error apparently originates only with certain echosounders used with the HDAPS. At this time it is not known if the faulty equipment was, in fact, used during this survey. Until the exact nature of this error is identified and quantified, users of the information contained in this report are cautioned that the depths contained in the column titled "APPROX DEPTH" may be at least six percent greater than the actual depths.

A plot of the significant contacts and AWOIS items, a copy of the Side Scan Sonar Data Report, a copy of the pertinent sonargrams relative to each significant contact and applicable excerpts from the Descriptive Report for survey H-10287 will be forwarded to the Commanding Officer, NOAA Ship HECK.

A contact plot at 1:20,000 scale and a contact list has been forwarded under separate cover to the Operations Section, CG241, for use in compiling project instructions.

Separate Cover

Nautical Chart Branch
7600 Sand Point Way NE
BIN C15700
Seattle, Washington 98115-0070

April 4, 1989 MOP211C/JSG

MEMORANDUM FOR: Commanding Officer
NOAA Ship HECK

FROM: Lieutenant Commander Pamela Chelgren-Koterba, NOAA
Chief, Nautical Chart Branch

SUBJECT: Investigation of Side Scan Sonar Contacts for OPR-C147, Offshore New Jersey Coast

REFERENCE: PMC letter, Review of Survey H-10287 Side Scan Sonar Records, March 22, 1989
PMC letter, Review of Survey H-10290 Side Scan Sonar Records, March 22, 1989
PMC letter, Review of Survey H-10291 Side Scan Sonar Records, March 22, 1989

A data package with items for additional investigation on hydrographic surveys H-10287, H-10290 and H-10291, OPR-C147, Offshore New Jersey Coast, has been forwarded to you previously. N/CG241 has requested that the following items in this package be clarified.

The data package includes a contact plot depicting the side scan sonar contacts and the AWOIS items for each survey. Items requiring additional investigation are symbolized on these contact plots by black squares. These black squares are also shown for AWOIS items that are candidates for disproval, as additional side scan survey coverage was originally requested. This request for additional side scan coverage was deleted at the last moment and the contact plots were not updated. The only items requiring additional investigation are identified in the referenced letters, copies of which are included in the data package. The black squares on the contact plots for the AWOIS items listed below should be disregarded.

H-10287	AWOIS Items 1516, 1528 and 4286
H-10290	AWOIS Items 1510 and 1511
H-10291	AWOIS Items 4282 and 4284

Additional data, such as a copy of the WHITING's Side Scan Sonar Data Report and copies of sonargrams for all the contacts recommended for additional investigation by the WHITING, are included in the data package. This additional data is for informational purposes only, the only items requiring additional investigation are identified in the letters to Chief, Nautical Charting Division, referenced previously.

cc: N/CG241

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 6, 1989

MARINE CENTER: Pacific

OPR: C147-HE-89

HYDROGRAPHIC SHEET: FE-332-SS

LOCALITY: Atlantic Ocean, offshore Elberon to Bradley Beach, New Jersey

TIME PERIOD: August 16 to August 18, 1989

TIDE STATION USED: 853-1680 Sandy Hook, N.J.

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.27 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 4.9 ft.

REMARKS: RECOMMENDED ZONING - apply a x0.95 range ratio to all heights, and a -0 hr. and 35 min. time correction for Sandy Hook.

James R. Hubbard

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-332

Name on Survey	A ON CHART NO. 12324 12326	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
NEW JERSEY, ATLANTIC OCEAN OFFSHORE ELBERON TO BRADLEY BEACH										
ATLANTIC OCEAN (TITLE)	X X									1
BRADLEY BEACH (TITLE)	X X									2
ELBERON (TITLE)	X X									3
NEW JERSEY (TITLE)	X X									4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
				Charles E. Harrington						17
				Chief Geographer			N/CG2x3			18
				DEC 5 1989						19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
FE-332

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	3	SMOOTH OVERLAYS: POS., ARC, EXCESS	3
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES	2					
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			

	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	3		3
VERIFICATION OF SOUNDINGS	3		3
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	16		16
COMPARISON WITH PRIOR SURVEYS AND CHARTS			
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		14	14
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	21	14	35

Pre-processing Examination by D. Hill	*Beginning Date* 11/27/89	*Ending Date* 11/28/89
Verification of Field Data by C.R. Davies	*Time (Hours)* 21	*Ending Date* 1/12/90
Verification Check by J.S. Green	*Time (Hours)* 4	*Ending Date* 2/9/90
Evaluation and Analysis by C.R. Davies	*Time (Hours)* 14	*Ending Date* 2/12/90
Inspection by D. Hill	*Time (Hours)* 6	*Ending Date* 5/7/90

EVALUATION REPORT
FE-332SS

1. INTRODUCTION

Survey FE-332SS is a field examination accomplished by the NOAA Ship HECK under the Project Instructions OPR-C147-HE, dated June 20, 1989.

This survey occurred offshore of New Jersey between the towns of Elberon and Bradley Beach. The surveyed area extends from latitude 40°11'45"N to latitude 40°15'45"N and longitude 73°52'10"W to longitude 74°00'00"W. The survey area is characterized by a gentle, sloping bottom. The bottom consists of sand, pebbles and shells. Depths range from 48 to 75 feet.

This field examination investigated three unresolved items specified in the attached memorandums from PHS to N/CG241, Review of Survey H-10287 Side Scan Sonar Records, dated March 22, 1989 and Investigation of Side Scan Sonar Contacts for OPR-C147, Offshore New Jersey Coast, April 4, 1989.

Predicted tides for Sandy Hook, New Jersey were used for the reduction of soundings during field processing. Approved hourly heights zoned from Sandy Hook, New Jersey, gage 853-1680, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. The TRA and sound velocity correctors are adequate. An accompanying computer printout contains the parameters and the correctors. The electronic control correctors have been determined according to the established procedures and are adequate, however, since this is an HDAPS survey, these correctors have been applied on line during data acquisition. Refer to the survey records for a review of the electronic control correctors used for the plotting of this survey.

A digital file has been generated for this survey as required by N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983.

2. CONTROL AND SHORELINE

Section H of the hydrographer's report and the Electronic Control Report for OPR-C147-HE, 1989, contain adequate discussions of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are 1988 field values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27

adjustment ticks based on values determined by N/CG121 for survey H-10287. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: 0.403 seconds (12.4 meters)
Longitude: -1.503 seconds (-35.5 meters)

There are no weak fixes found on this survey.

There are no shoreline maps applicable to this survey.

3. HYDROGRAPHY

Hydrography is adequate to determine least depths and resolve the features investigated on survey H-10287 except for Contact 7, which is discussed in section 6 of this report.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, the Side Scan Sonar Manual and the Field Procedures Manual except as follows.

The prior survey H-6463WD listed in the project instructions was not compared with.

5. JUNCTIONS

Junctions were not required by the project instructions.

6. COMPARISON WITH PRIOR SURVEYS

H-6463WD(1939) 1:40,000
H-10287(1988) 1:10,000

Surveys H-6463WD and H-10287 cover the entire area of the present survey. A comparison with survey H-10287 is satisfactory. The only feature on H-6463WD within the limits of the survey is a submerged wreck (AWOIS Item 1517), which is discussed below. Survey FE-332SS is adequate to supersede the features investigated on these prior surveys except for contact 7 at latitude 40°14'58.197"N, longitude 73°57'14.564"W. See hydrographer's report section K and below for the disposition of this feature.

AWOIS Item 1517, a submerged wreck, was transferred to survey H-10287 from survey H-6463WD at latitude 40°12'12.2"N, longitude 73°59'16.5"W (NAD 83). The hydrographer investigated this item by diver and echosounder. A least depth of 48 feet at MLLW was observed on the submerged wreck. It is recommended that the submerged wreck covered 48 feet supersede the submerged wreck

covered 41 feet on survey H-6463WD and H-10287. For additional information, see Contact 15 in the hydrographer's report section K.

The investigation of Contact 7 confirmed the existence of the feature, however, a minimum depth by diver or echosounder was not obtained. An approximate depth of 58 feet at latitude 40°14'58.19"N and longitude 73°57'14.56"W, was scaled from the side scan sonar records. This depth is shown on the smooth sheet as an obstruction with an annotation that it is scaled from the side scan sonar records and is approximate. This depth supersedes the obstruction covered 57 feet shown on H-10287, which is also a side scan depth, as the larger scale data from this survey (50 meter range scale versus 100 meter) is accepted as the more accurate.

7. COMPARISON WITH CHART

Chart 12324, 24th edition, dated November 15, 1986;
scale 1:40,000
Chart 12326, 38th edition, dated February 22, 1986;
scale 1:80,000

a. Hydrography

All charted hydrography originates with older prior surveys and miscellaneous sources.

Survey FE-332SS is adequate to determine the least depth on the charted wreck at latitude 40°12'12.23"N, longitude 73°59'15.42"W (NAD 27). The hydrography on survey FE-332SS is adequate to supplement survey H-10287 as the source for the charting of the common area.

AWOIS #1517

b. AWOIS

There are no AWOIS items originating from miscellaneous sources.

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

There are no fixed aids or floating aids in the survey area.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

No reports of dangers to navigation were generated during the survey or office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey FE-332SS adequately complies with the Project Instructions except as noted in sections 4 and 6 of this report.

9. ADDITIONAL FIELD WORK

This survey is an adequate field examination. An additional investigation on a low priority basis will be needed to completely resolve contact 7.

Charles R. Davies

C. R. Davies
Cartographer

This survey has been examined and it meets Charting and Geodetic Services' standards and requirements for use in nautical charting. Approval is recommended.

Dennis Hill

Dennis Hill
Chief, Hydrographic Unit

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey FE-332SS. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

Dennis Hall 5-8-90

FOR Commander Pamela Chelgren-Koterba, NOAA (Date)
Chief, Pacific Hydrographic Section

Approved: Not required per HSG No. 70 5-15-90 KWW

RADM Ray E. Moses, NOAA (Date)
Director, Atlantic Marine Center

Approved: Nicholas C. Hull 5-17-90

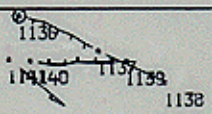
RADM Wesley V. Hull, NOAA (Date)
Director, Charting and Geodetic Services

73°57'30"

73°57'00"

40°15'00"

40°15'00"



73°57'30"

40°14'30"

NAD 27

40°14'30"

CRD 1/16/90

USG ✓

FE-332

NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO ELBERON

POSITION OVERLEY A
CONTACT 7
SHEET: 1 OF 3

73°57'30"

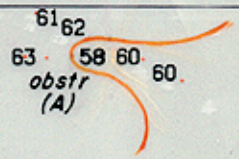
73°57'00"

73°57'30"

73°57'00"

40°15'00"

40°15'00"



(A) Depth on this obstruction was estimated by scaling heights off the bottom from side scan sonar records. Position was determined by computing offsets from the vessel's track.

73°57'30"

40°14'30"

NAD 27

40°14'30"

CRD 1/11/90
JSG ✓

FE-332SS

NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO ELBERON

DATE OF SURVEY: AUG 1989
SCALE-1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 7
SHEET: 1 OF 3

73°57'30"

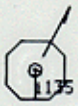
73°57'00"

73°59'30"

73°59'00"

40°12'30"

40°12'30"



40°12'00"

40°12'00"

73°59'30"

40°11'30"

NAD 27

40°11'30"

CRD 1/16/90
JSG ✓

FE-332
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH TO ELBERON

POSITION OVERLAY A
CONTACT 15, AWOIS 1517
SHEET: 2 OF 3

73°59'30"

73°59'00"

73°59'30"

73°59'00"

40°12'30"

40°12'30"

48 Wk

40°12'00"

40°12'00"

73°59'30"

40°11'30"

NAD 27

40°11'30"

CRD 1/11/90
JSG ✓

FE-332SS

NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO ELBERON

DATE OF SURVEY: AUG 1989
SCALE-1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 15, AWOIS 1517
SHEET: 2 OF 3

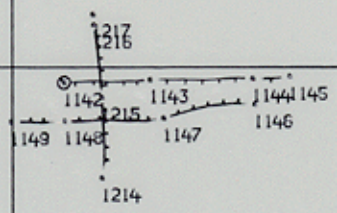
73°59'30"

73°59'00"

73°53'30"

73°53'00"

40°12'30"



40°12'30"

73°53'30"

40°12'00"

NAD 27

40°12'00"

40°12'00"

CRD 1/16/90
JSG ✓

FE-332
NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO ELBERON

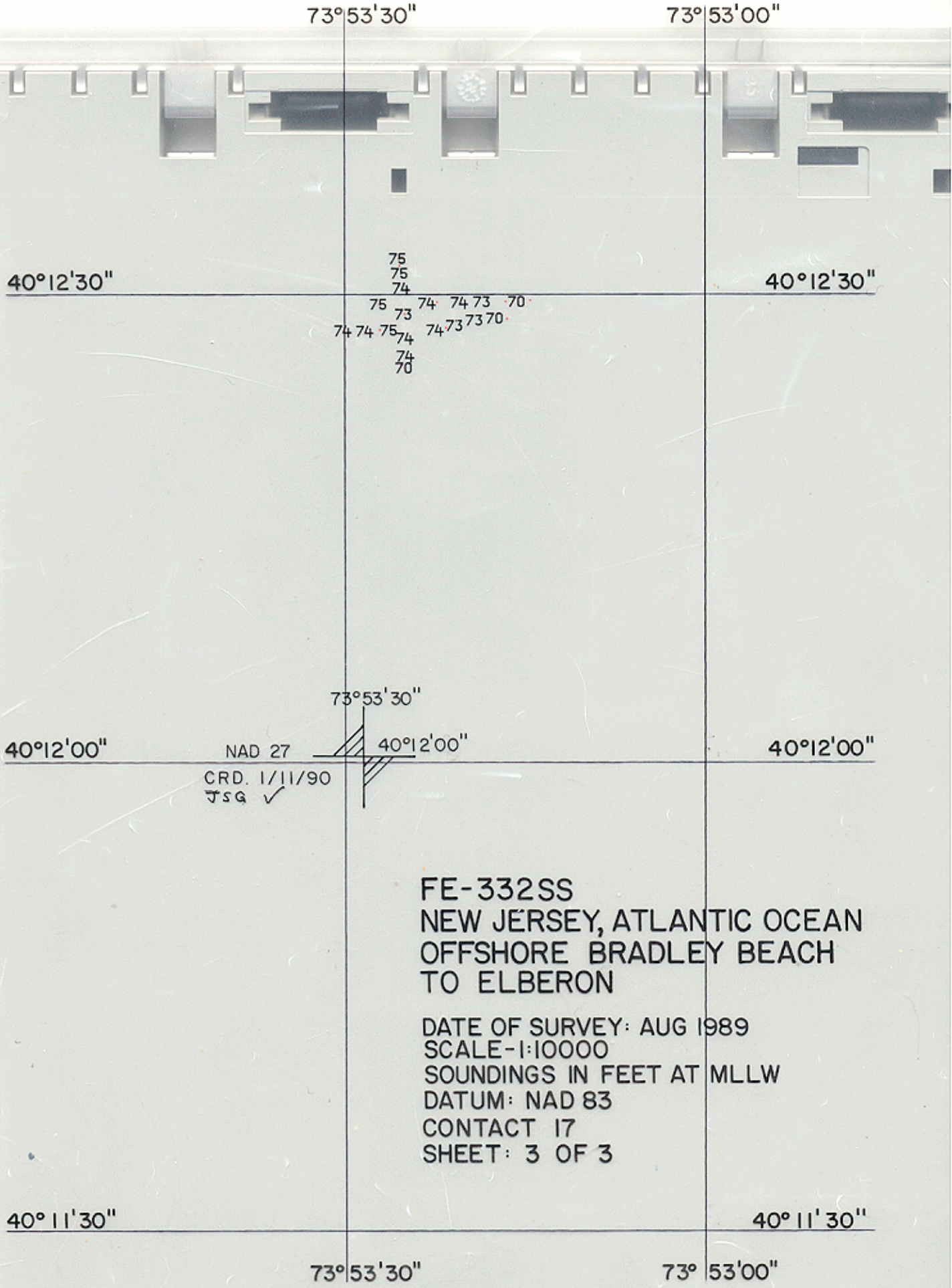
POSITION OVERLAY A
CONTACT 17
SHEET: 3 OF 3

40°11'30"

40°11'30"

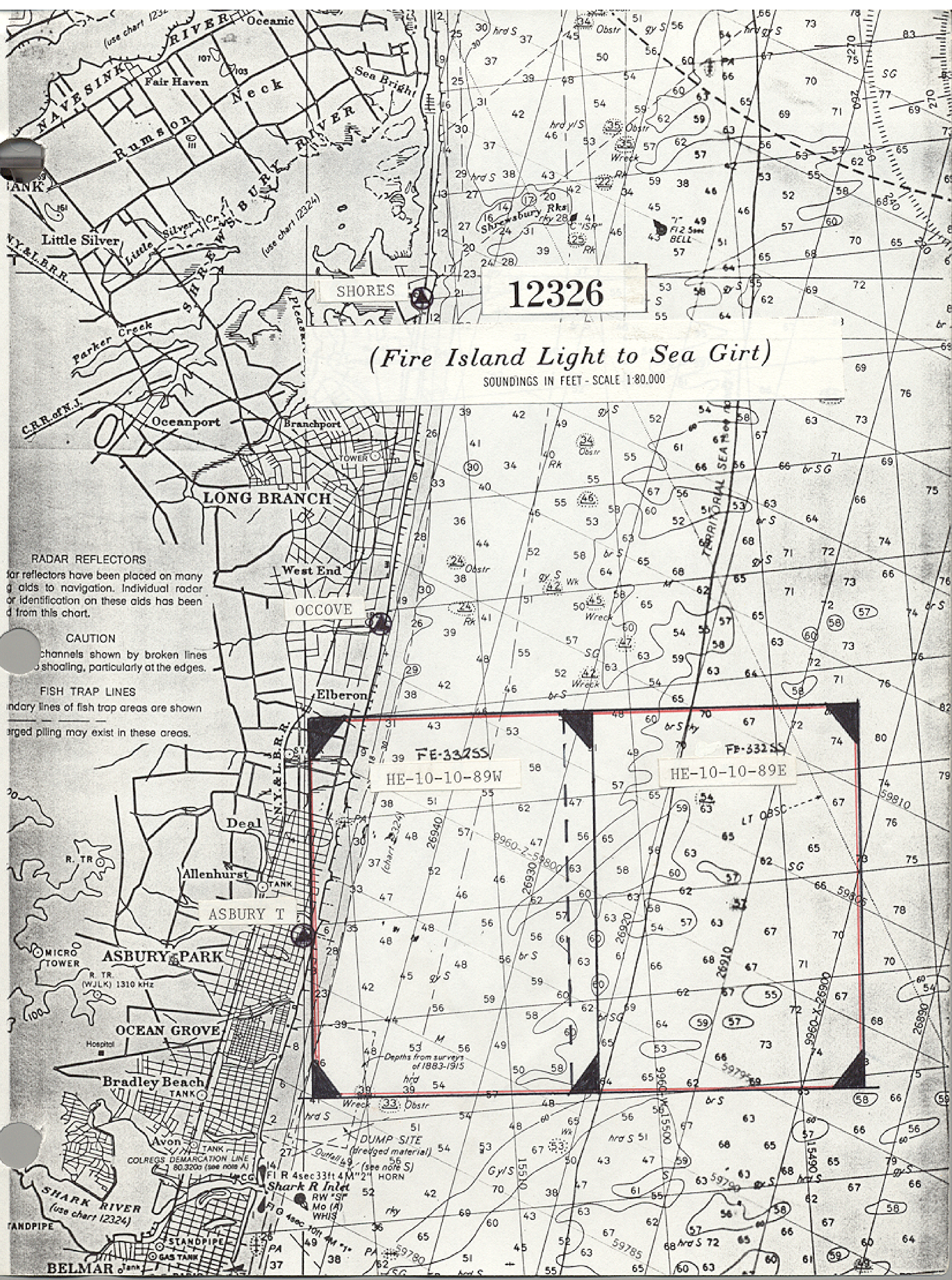
73°53'30"

73°53'00"



FE-332SS
NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO ELBERON

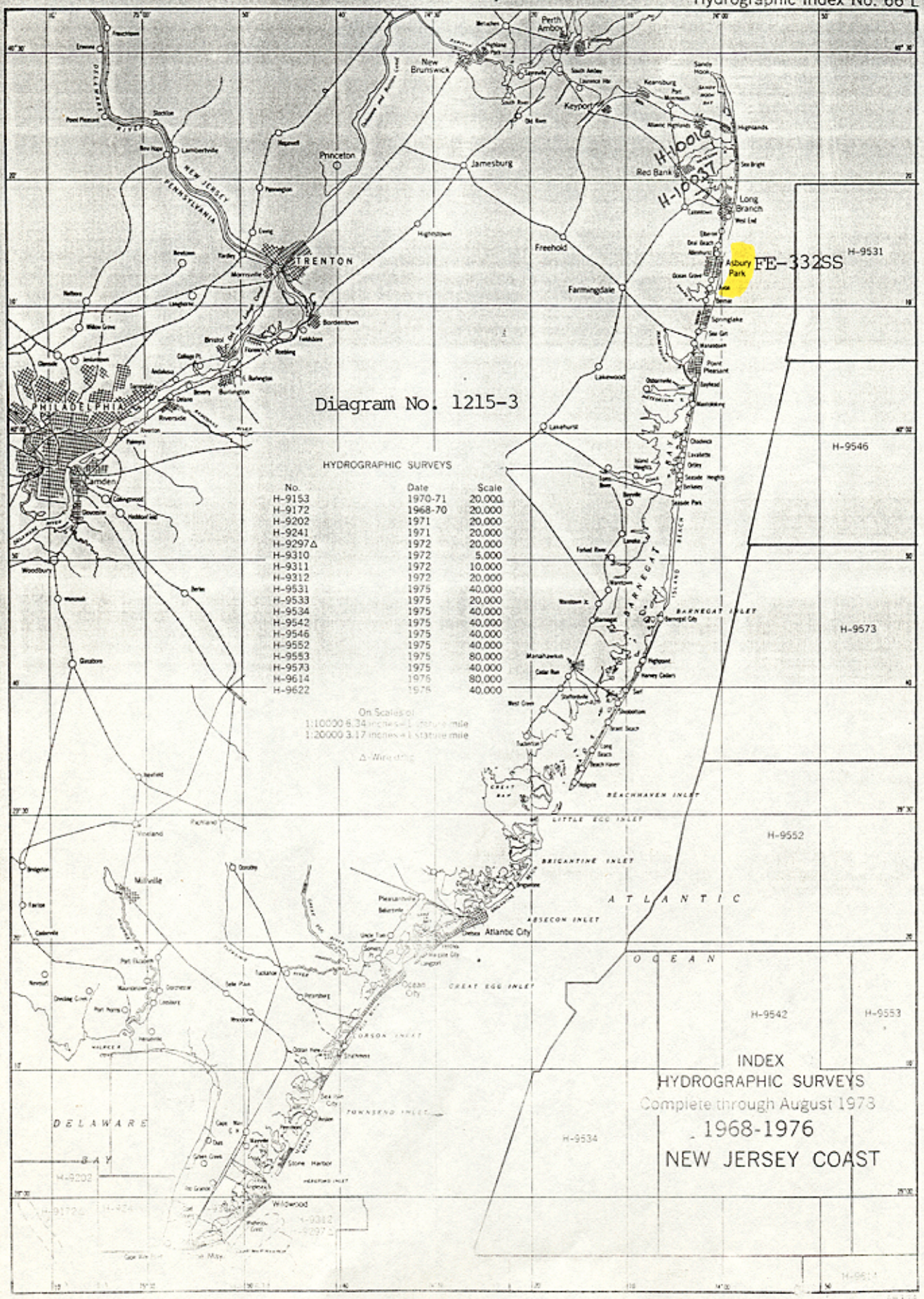
DATE OF SURVEY: AUG 1989
SCALE-1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 17
SHEET: 3 OF 3



12326
(Fire Island Light to Sea Girt)
SOUNDINGS IN FEET - SCALE 1:80,000
SHORES
OCCOVE
ASBURY T
FE-3325S
HE-10-10-89W
FE-3325S
HE-10-10-89E
Oceanic
Fair Haven
Rumson
Neck
Sea Bright
NAVESINK RIVER
SHREWSBURY RIVER
Little Silver
Parker Creek
Oceanport
Branchport
LONG BRANCH
West End
Elberon
Deal
Allenhurst
ASBURY PARK
OCEAN GROVE
Bradley Beach
Avon
SHARK RIVER
(use chart 12324)
BELMAR
RADAR REFLECTORS
dar reflectors have been placed on many
g aids to navigation. Individual radar
or identification on these aids has been
d from this chart.
CAUTION
channels shown by broken lines
o shoaling, particularly at the edges.
FISH TRAP LINES
ndary lines of fish trap areas are shown
erged piling may exist in these areas.
TERRITORIAL SEA
Shrewsbury Rks
DUMP SITE
(dredged material)
Depths from surveys of 1883-1915
COLREGS DEMARCATION LINE
Shark R Inlet

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 66 L



HYDROGRAPHIC SURVEYS

No.	Date	Scale
H-9153	1970-71	20,000
H-9172	1968-70	20,000
H-9202	1971	20,000
H-9241	1971	20,000
H-9297Δ	1972	20,000
H-9310	1972	5,000
H-9311	1972	10,000
H-9312	1972	20,000
H-9531	1975	40,000
H-9533	1975	20,000
H-9534	1975	40,000
H-9542	1975	40,000
H-9546	1975	40,000
H-9552	1975	40,000
H-9553	1975	80,000
H-9573	1975	40,000
H-9614	1976	80,000
H-9622	1976	40,000

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

Δ-Wire drag

INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1973
1968-1976
NEW JERSEY COAST

NOAA FORM 75-96
(10-83)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-332 SS

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12324	5/9/90	ACMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via critical soundings
			Drawing No. applied.
12326	5/9/90	ACMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via critical soundings
			Drawing No. applied.
~~12300~~	3-8-91	KR Foster	
			Full ~~Part Before~~ After Marine Center Approval Signed Via
12300	3-8-91	KR. Foster	Drawing No. 55
13003	3-15-91	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 62
			No corrections at this scale
13006	7/30/93	L. Ackman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 49, APPD Then cht 12300
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED